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Via Electronic Filing

Marlene H. Dortch, Secretary
Federal Communications Commission
445 Twelfth Street, SW
Washington, DC 20554

Re: *Ex Parte* Notice: *Promoting Investment in the 3550-3700 MHz Band* – GN Docket No. 17-258

Dear Ms. Dortch:

On February 14, 2018, Michael Fitzpatrick, Head of Regulatory Advocacy at the General Electric Company ("GE"), and I met with Louis Peraertz, Legal Advisor to Commissioner Mignon Clyburn, to discuss the Commission's pending Notice of Proposed Rulemaking in the above-captioned proceeding.[1] During this discussion, we urged that the Commission preserve its innovative census-tract licensing framework for the Citizens Broadband Radio Service ("CBRS") as a means of increasing participation in the 3.5 GHz spectrum auction and promoting U.S. leadership in 5G deployment.

With census-tract licensing for Priority Access Licenses ("PALs"), a broad range of parties will bid for access to licensed spectrum, develop dynamic, diverse uses of the 3.5 GHz band, and maximize the value of CBRS licenses. Spectrum is an essential input for myriad activities around the United States that generate important economic, social, safety, and other public interest benefits. GE, its IIoT customers, and other diverse users will make intensive use of their licensed spectrum with targeted, localized wireless network deployments that will generate a wave of new cutting-edge jobs and economic growth in a mix of urban, suburban, rural, and remote areas. As a company that enables digital industrial and manufacturing infrastructure for its customers, GE agrees that advancing 5G build-out and maintaining U.S. 5G leadership are crucial national goals. The most certain and rapid way to realize those goals is to

[1] *See Promoting Investment in the 3550-3700 MHz Band*, Notice of Proposed Rulemaking and Order Terminating Petitions, 32 FCC Rcd 8071 (2017) ("*NPRM*").

cultivate a broad-based, heterogeneous 5G ecosystem that includes a diversity of new innovators and existing operators, technology vendors, and spectrum users.

Census-tract licensing is crucial to GE and its industrial and critical-infrastructure customers, since the CBRS band is an ideal spectrum platform for the "Industrial Internet of Things" ("IIoT"). Under the Commission's current rules, GE and its customers will be able to use their own licensed 3.5 GHz spectrum to "self-provision" IIoT wireless connectivity over geographically targeted, private TDD-LTE networks, rather than having to rely on wireless carrier services. While GE expects to bid on census-tract PALs itself and become a CBRS licensee in some instances, it anticipates that its industrial and critical-infrastructure customers will bid on an even greater number of CBRS PALs around the country. More generally, there is no doubt that entities from the industrial and critical-infrastructure sectors will compete vigorously in auctions for *census-tract* licenses in order to obtain the spectrum necessary to support IIoT-related services and applications.

Whether it is GE or its customers that hold CBRS licenses, GE has a huge economic stake in the preservation of census-tract licensing and the use of the 3.5 GHz band as a springboard for the IIoT. The design, installation, and support of digital infrastructure are increasingly important elements in GE's multi-line global business. GE will work in partnership with its industrial and critical-infrastructure customers as it seamlessly and cost-effectively offers these IIoT customers "connectivity in a box" in the 3.5 GHz band. GE will provide these industrial and critical-infrastructure entities with IIoT technology and serve as a wireless system aggregator for these customers, using PAL spectrum to take full advantage of advances in inspection, remote control, and monitoring technologies, edge computing capabilities, and cloud-based Big Data predictive analytics (as described at length in GE's comments). With self-provisioned private LTE networks at 3.5 GHz, GE and its customers will be able to minimize costs, control service quality, enhance safety, and optimize network and IIoT-system performance.

As indicated below, if the Commission reverses course and moves to Partial Economic Area ("PEA")-based licensing, it is likely that neither GE nor its customers will be able to obtain CBRS PALs, jeopardizing the benefits of the IIoT. To implement robust IIoT systems, GE and its industrial and critical-infrastructure customers need spectrum that provides certain, secure, cost-effective, and high-performance wireless connectivity. General Authorized Access ("GAA") and other unlicensed spectrum is not a viable alternative to census-tract PAL spectrum, since such frequencies do not provide users with interference protection or ensure the safe and reliable operation of mission-critical facilities. Nor can GE and its IIoT customers count on cost-effectively obtaining such wireless functionality from commercial mobile operators, given the major carriers' emphasis on consumer-based services and their reluctance to make meaningful

amounts of spectrum available to non-traditional users through the secondary market.[2] Accordingly, if the Commission departs from the existing census-tract framework, IIoT investment, innovation, and deployment would likely be delayed and reduced.

Significantly, a shift away from census-tract licensing would jeopardize the trillions of dollars of additional U.S. economic output that, according to numerous observers, will be generated by IIoT operations over the next decade. The manufacturing sector is already a critical engine of productivity for the U.S. economy, generating a gross output of $5.9 trillion in 2013, which represented 35.4% of the U.S. gross domestic product that year. Multiple analysts have previously concluded that IIoT will serve as a unique catalyst for substantial growth throughout the industrial and manufacturing sector and in the global and U.S. economies more generally. For instance, Accenture estimates that the IIoT could add $14.2 trillion to the global economy by 2030, and projects that the U.S. economy will gain at least $6.1 trillion in cumulative U.S. GDP by that same year.[3]

As GE has described in this proceeding, licensing CBRS on a PEA basis would exponentially raise the cost of PALs and convert licensed CBRS spectrum into a commercial mobile band like most others, controlled by the major carriers. GE and its industrial and critical-infrastructure customers would be highly unlikely to bid for PEA licenses at auction, even in key, targeted geographic areas. It would not be economically rational to obtain PEA licenses covering territory extending far beyond their geographically focused deployments, whether in urban, suburban, or rural areas.

In considering its options in this proceeding, the Commission should recognize that its "Innovation Band" at 3.5 GHz is a dramatic success so far, triggering a surge in wireless industry involvement by non-traditional participants, including GE and other industrial and critical-infrastructure entities such as the Port of Los Angeles.[4] This band has sparked new investment and commercial activity, innovative business models, digital infrastructure development, and collaboration between stakeholders. GE and its industrial and critical-infrastructure customers are eager to utilize the CBRS band to bring the full benefits of the IIoT revolution to the

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[2] *See* Comments of The General Electric Company, GN Docket No. 17-258, at 13, 23-25 (Dec. 28, 2017).

[3] Paul Daugherty and Bruno Berthon, *Winning with the Industrial Internet of Things: How to Accelerate the Journey to Productivity and Growth*, ACCENTURE, at 2-3 (2015), https://www.accenture.com/t00010101T000000Z_w_/at-de/_acnmedia/Accenture/Conversion-Assets/DotCom/Documents/Global/PDF/Dualpub_11/Accenture-Industrial-Internet-of-Things-Positioning-Paper-Report-2015.ashx.

[4] *See* Letter from Eugene D. Seroka, Executive Director of The Port of Los Angeles, to Hon. Ajit Pai, Chairman of the Federal Communications Commission, *et al*., GN Docket No. 17-258 (Jan. 29, 2018).

American public and the U.S. industrial and manufacturing sectors. The Commission should maintain census-tract licensing at 3.5 GHz and take full advantage of this historic opportunity to spur innovation, enormous economic growth, and important public safety benefits through widespread scaling of the IIoT.

Pursuant to section 1.1206(b)(2) of the Commission's rules, 47 C.F.R. § 1.1206(b)(2), this *ex parte* notification and a one-page overview of GE's arguments in this proceeding are being filed electronically for inclusion in the public record of the above-referenced proceeding.

Respectfully submitted,

/s/ *Stephen J. Berman*
Stephen J. Berman

Attachment

cc: Louis Peraertz

THE FCC SHOULD PRESERVE ITS INNOVATION BAND RULES

- The FCC's "Innovation Band" is a dramatic success so far, triggering a surge in new commercial activity, digital infrastructure development, and industry collaboration.

- The Commission should encourage investment and innovation by keeping the successful rules it adopted for the Innovation Band, known as the Citizens Broadband Radio Service ("CBRS").

- The nation's airwaves are an essential resource that generates important economic, social, safety, and other public interest benefits throughout the U.S. The FCC's licensing rules can spur innovation and growth in America's manufacturing and critical infrastructure sectors.

- Advancing the next wave of technology – 5G – and maintaining U.S. 5G leadership are crucial national goals. The existing CBRS rules will foster a broad-based 5G ecosystem beyond the traditional major carriers and enhance 5G opportunities by including new innovators, manufacturers, utilities, and technology vendors.

- The FCC is considering whether to convert CBRS into a commercial mobile band like most others, controlled by the major carriers. The FCC should retain its current licensing rules as a means of spurring investment and innovation.

- The CBRS rules are crucial to GE and its industrial/critical-infrastructure customers, since this spectrum is an ideal platform for the "Industrial Internet of Things" ("IIoT").

- Under the current rules, industrial and critical-infrastructure entities will compete vigorously in CBRS auctions to obtain the spectrum necessary to support IIoT-related services and applications. GE itself expects to bid on census-tract PALs in some instances.

- Using CBRS spectrum, GE, its competitors, and industrial/critical-infrastructure customers will be able to innovate, minimize costs, enhance safety and security at their facilities, and optimize network performance with "self-provisioned" private wireless networks in the Innovation Band.

- Manufacturers, critical infrastructure companies, GE, and other industrial users will build local CBRS networks that generate new cutting-edge jobs and economic growth in cities, suburbs, rural, and remote areas.

    - The IIoT will serve as a unique catalyst for economic growth – the U.S. economy is projected to gain $6.1 trillion in cumulative U.S. GDP by 2030 as a result of the IIoT.
    - The manufacturing sector is already a critical engine for the U.S. economy, generating a gross output of $5.9 trillion in 2013 (35.4% of the U.S. GDP) and supporting 29.1 million U.S. jobs that year (over 20% of total U.S. employment).

- Despite the promise of the Innovation Band, the FCC may change the very licensing rules that encourage participation by the manufacturing and critical infrastructure sectors. The Commission could skew the CBRS auction process by making the license areas so large that only the major wireless carriers would be interested in bidding for them – thereby excluding the myriad parties currently investing substantial time and resources into developing this spectrum.

- The FCC should maintain its Innovation Band to spur investment, innovation, U.S. leadership in 5G, and enormous economic and public safety benefits through widespread scaling of the IIoT.